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FAIR AND OTHER NON-INFRINGING USES IN THE CONTEXT OF CLOUD COMPUTING

George Jiang *

INTRODUCTION

Each generation of copyright law memorializes society's Sisyphean attempt to strike a static balance between the interests of the author and the public within the context of a dynamic reality. Congress can only craft legislation with respect to known facts; therefore, every statute encapsulates legislative value judgments regarding foreseeable situations at the time of enactment.[1] In effect, laws are snapshots of the policy balances that a legislature strikes while implementing a solution to a particular factual problem. Unfortunately, the facts themselves change and the snapshots become more like motion pictures that feature unforeseen plot twists.

A confluence of factors prompts modifications of copyright law, including the development of technologies that permit new methods of distribution, the rising threat of copyright infringement, and the public's evolving need to access

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1. *See* Richard A. Posner, *Statutory Interpretation – In the Classroom and in the Courtroom*, 50 U. CHI. L. REV. 800, 811 (1983) ("Omniscience is always an unrealistic assumption, and particularly so when one is dealing with the legislative process. . . . [A] statute necessarily is drafted in advance of, and with imperfect appreciation for the problems that will be encountered in, its application.").

copyrighted works without owner authorization. Since these developments undermine the fundamental assumptions undergirding the policy balances struck at any one point in time, copyright law must constantly be renewed in order to keep up with the needs of society.[2]

This note examines the emerging use of internet-based computer software applications, colloquially termed "cloud computing," and the role that the cloud paradigm can play in challenging the core premises of the Digital Millennium Copyright Act (DMCA). Cloud computing enable users to take advantage of web-based services to perform tasks normally assigned to the user's personal computer or other local computing device.[3] Copyright holders also see an additional benefit of cloud computing—the ability to exert more precise and continuing control over their digital intellectual property than other previous technological measures.[4] Moreover, as this note will later show, the DMCA imbues cloud-protected works with additional legal protection by proscribing any attempt to circumvent the cloud itself. Through a combination of technology and law, copyrighted works enjoy a status effectively on par with real property.

Copyright law was never intended to provide right holders with such robust protection. While the DMCA's strong safeguards may have once been justified when copyright holders did not have adequate technological responses to digital piracy, these same safeguards will impose significant costs on society as cloud computing continues to gain steam.

Congress must readjust the statutory scheme to better reflect the values promoted by copyright law. Part I of this note will examine the history of copy protection and Congress's evolutionary implementation of copyright law. Specifically, this note addresses the policy choices made in prior technological eras to illustrate the strong relationship between a limited copyright law and the promotion of the public's access to intellectual property. In addition, this section provides a general picture of the current United States copyright regime and the various complaints that scholars have leveled against it. Next, Part II elaborates upon the description of cloud computing already given and its effect on copyright law. Finally, Part III proposes that Congress enact legislation aimed at forcing cloud service providers to permit fair and other non-infringing uses as a prophylactic measure to curtail the ability of copyright owners to control all uses of their works. Congress must restore the vitality of the fair use doctrine and ensure that non-infringing access to copyrighted content is

2. *See* Trotter Hardy, *Copyright and "New-Use" Technologies*, 23 NOVA L. REV. 659, 704 (1999) ("Copyright law seems never to be caught up with technology, with the result that Congress is under constant pressure to amend the Copyright Act to bring the law up to date with new developments.").

3. *See* Geoffrey A. Fowler & Ben Worthen, *The Industry Is on a Cloud - Whatever That May Mean*, WALL ST. J., Mar. 26, 2009, at A1, *available at* http://online.wsj.com/article/SB123802623665542725.html ("Information is stored and processed on computers somewhere else -- "in the clouds" -- and brought back to your screen.").

4. *See* Bruce Richardson, Is *2010 Another Great Year for Cloud Stocks?*, AMR RESEARCH, Jan. 8, 2010, http://www.amrresearch.com/Content/View.aspx?compURI=tcm:7-50085 (commenting on a report by Piper Jaffray, which suggested that "broader adoption of cloud applications could mean the end of software piracy").

possible in a cloudier future.

I. DEVELOPMENT OF COPYRIGHT LAW

Copy protection laws have adapted to accommodate the needs of society in each era. Since technological advancement historically meant new opportunities for copying and dissemination, copyright protection had likewise expanded to address these new possibilities. Regardless of the time frame, however, copyright has always been a limited right. Whether by the limitations of copying technology or the limitations of the copyright law, content creators have not traditionally been able to impose broad terms of use against the public. A discussion of copyright's origins and history can illustrate the limited nature of the right to control copying.

Early Content Protection Regimes

Before it was practical to make a substantial profit from copying another's works, the concept of "copyright" did not exist. Long ago, authors rarely profited from selling copies of their works and it was understood in the Middle Ages that:

> [T]he owner of a manuscript . . . possess[ed] the right to grant permission to copy it, and this was a right that could be exploited, as it was, for example, by those monasteries that regularly charged a fee for permission to copy one of their books. Perhaps this practice might be thought to imply a form of copyright, and yet the bookowner's property was not a right in the text as such but in the manuscript as a physical object made of ink and parchment. Moreover, the rights of the bookowner had nothing to do with authorship.[5]

While an author may claim ownership of manuscripts as physical objects, the author's claim of control over those manuscripts ceased upon transfer.[6] Until the development of advanced marketplaces that could fully leverage the power of the printing press, authors from the era of antiquity through the eighteenth century instead received compensation from wealthy patrons, such as the monarchy, the nobility, and the church.[7] Because the patronage system "provided the authors with the needed incentives to engage in the creative process," copyright was not necessary.[8]

The development of the printing press triggered the birth of modern copyright law.[9] The Venetian Republic, followed by other European states, soon

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5. MARK ROSE, AUTHORS AND OWNERS 9 (1993).

6. *Id.* at 17-18.

7. *See id.* at 16 ("Before the evolution of the advanced marketplace society . . . , the major relations of exchange for authors occurred within a traditional patronage system in which . . . patrons received honor and status in the form of service from their clients and in return provided both material and immaterial rewards."); Peter K. Yu, *Of Monks, Medieval Scribes, and Middlemen*, 2006 MICH. ST. L. REV. 1, 19 (2006).

8. Yu, *supra* note 7, at 19.

9. Unlike the manual production of text, printing an edition of a book involved a substantial

issued "privileges" to printers granting "exclusive rights . . . to individuals for limited periods of time."[10]

The watershed event for authorial rights would not come about until 1709, when the English Parliament passed the Statute of Anne—the world's first copyright law and "An Act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned."[11] This shift toward providing authors a lingering right in their work resulted from the attempt by the Stationers' Company, a printing guild composed of printers and booksellers,[12] to regain the printing monopoly that it once enjoyed under the expired Licensing Act.[13] The restoration of the guild's powers, however, was not complete: the statute limited the term of protection to two consecutive fourteen-year periods and recognized that authors could obtain copyrights in their works.[14]

By emphasizing an author's rights, Parliament may have intended for the author to act as a foil to the Stationers' monopolistic control over literary property.[15] Additionally, copyright's limited duration evinces Parliament's rejection of the Stationers' arguments that literary property was the same as real property.[16] Even at its inception, copyright law attempted to balance the powers of the various right holders toward the end of promoting the public's interest in enjoying the fruits of a robust market in intellectual property.[17]

Early United States Copyright Law

The authority of the United States Congress to enact both copyright and patent laws are Constitutionally linked under Article I, section 8: "The Congress shall have Power . . . to promote the Progress of Science and useful Arts, by

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initial investment of capital both in the selection of materials to be printed and in the machinery of the printing press itself. ROSE, *supra* note 5, at 9. This large initial investment, on the other hand, produced multiple copies that were to be distributed over time. *Id.* Printers therefore needed assurances that they could recoup their initial investment in printing presses through a system of trade regulation. *Id.*

10. *Id.* at 10-11.

11. PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAY 43 (1994).

12. *See* ROSE, *supra* note 5, at 4.

13. *See* GOLDSTEIN, *supra* note 11, at 42.

14. *See* GOLDSTEIN, *supra* note 11, at 43. Under the earlier regimes, the guild's copyrights were perpetual and only members of the guild could hold copyrights. *Id.*; *see also* ROSE, *supra* note 5, at 4.

15. *See* ROSE, *supra* note 5, at 47.

16. *Id.* The Stationers' Company continued to promote a natural rights theory of literary property separate from the copyright system provided by the Statute of Anne. After early court victories, the Stationers would ultimately fail to persuade the House of Lords that there existed a perpetual common law copyright. *Id.* at 47-51.

17. Once a believer of the natural rights theory of literary property, Lord Mansfield would eventually backtrack:

> We must take care to guard against two extremes equally prejudicial; the one, that men of ability, who have employed their time for the service of the community, may not be deprived of their just merits, and the reward of their ingenuity and labor; the other, that the world may not be deprived of improvements, nor the progress of the arts be retarded.

GOLDSTEIN, *supra* note 11, at 50-51.

securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[18] By framing the need for intellectual property laws in terms of promoting the public good, the clause served as "both a grant of power and a limitation."[19] As the Supreme Court confirmed, enriching the public domain is the objective of intellectual property and Congress cannot frustrate that end by providing overly muscular protection for right holders.[20]

Drawing inspiration from the Statute of Anne,[21] the First Congress enacted the Copyright Act of 1790 to provide protection for books, maps, and charts upon registration.[22] The narrow scope of copyrightable works would eventually expand in response to technological advancement.[23]

With the passage of the Copyright Act of 1909 ("1909 Act"), Congress brought the mechanical reproduction of musical compositions within the realm of copyright.[24] Unlike other forms of copyright, however, copyrights in musical recordings were subjected to a compulsory license: once a copyright owner authorized a mechanical copy of his musical composition, any other company could make its own recording of the composition by paying a fixed royalty for each record it produced.[25] Congress designed this innovation to blunt the fears of a monopoly on recorded music by the Aeolian Company, a manufacturer of player pianos that had bought much of the mechanical recording rights from America's principal music publishers in anticipation to the statute's

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18. U.S. CONST. art. I, § 8, cl. 8.

19. Lee v. Runge, 404 U.S. 887, 889 (1971). Far from providing legal entitlements analogous to property rights, ownership of intellectual property came with significant strings attached:

> The Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available. Innovation, advancement, and things which add to the sum of the useful knowledge are inherent requisites in a patent system which by constitutional command must 'promote the Progress of . . . the useful Arts.' This is the *standard* expressed in the Constitution and it may not be ignored.

Id. (emphasis in original).

20. *See* United States v. Paramount Pictures, 334 U.S. 131, 158 (1948) ("The sole interest of the United States and the primary object in conferring the monopoly lie in the general benefits derived by the public from the labors of authors. . . . [R]eward to the author or artist serves to induce release to the public of the products of his creative genius.") (citation omitted) (internal quotation marks omitted).

21. *See* Lyman Ray Patterson, *The Statute of Anne: Copyright Misconstrued*, 3 HARV. J. LEGIS. 223, 223 (1966) ("The Statute of Anne . . . served as a model for the first federal copyright act, passed in 1790.").

22. Act of May 31, 1790, ch. 15, § 1, 1 Stat. 124, 124 (repealed 1831).

23. Due to the introduction of photographic technologies in the mid-1800s, Congress extended the subject matter of copyrights to include photographic prints and negatives. GOLDSTEIN, *supra* note 11, at 58. Although Congress had not explicitly provided that motion pictures could be copyrighted, later judicial decisions held that the protection of motion pictures was implied when Congress added photographs to the list of copyrightable subject matter. *Id.* at 62.

24. *Id.* at 67.

25. *Id.*

enactment.[26] Through the 1909 Act, Congress reaffirmed the Constitutional policy of rewarding authors with a limited monopoly on their works for the ultimate purpose of benefiting the public.[27]

Because the 1909 Act was enacted during an era of rapid technological advances in communications technologies, however, the statute was "subjected to frequent ad hoc amendment and unguided judicial interpretation."[28] By the time Congress passed the Copyright Act of 1976, courts had "stretched the limits of statutory language in order to make the obsolete 1909 Act serviceable."[29]

Modern United States Copyright Law

After a 15 year effort to revise the 1909 Act, Congress enacted the Copyright Act of 1976 ("1976 Act") to set the general terms of the current copyright regime.[30] As defined by section 102(a), "works of authorship" now recognized as copyrightable broadly included literary, musical, dramatic, and graphic works, as well as motion pictures and sound recordings.[31] Moreover, federal copyrights attach to any original works of authorship from the moment they are "fixed in any tangible medium of expression," whether in published or unpublished form.[32] Section 302 also extended the term of a copyright to include the life of an author plus fifty years and set the term of all other works to seventy-five years after publication.[33]

Most of the 1976 Act's substantive language was the product of extensive bargaining and negotiation among parties with interests in copyrights.[34] Many negotiated compromises were adopted verbatim into the 1976 Act, including the portions governing cable television, library photocopying, and jukebox operation.[35] As the Register of Copyrights remarked at an early stage of the statute's formation, many provisions were "carefully worked-out compromises which, while not especially welcome to either side on a particular issue, have proved a satisfactory way of balancing the interests."[36]

Congress also codified a number of longstanding judicial doctrines that limited both the scope of copyrightable subject matter and the types of uses that constituted infringement. First, section 102(b)'s recognized the idea-expression

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26. *Id.* at 65-67.

27. W. Russell Taber, *Copyright Déjà Vu: A New Definition of "Publication" Under the Copyright Act of 1909*, 58 VAND. L. REV. 857, 861 (2005).

28. ROBERT A. GORMAN, FED. JUDICIAL CTR., COPYRIGHT LAW 2 (2nd ed. 2006).

29. Jessica D. Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857, 858 (1987).

30. GORMAN, *supra* note 28, at 3.

31. 17 U.S.C. § 102(a) (1982).

32. *Id.*; *see also* GORMAN, *supra* note 28, at 3.

33. 17 U.S.C. § 302 (1982).

34. Litman, *supra* note 29, at 861.

35. *Id.* at 869.

36. *Copyright Law Revision: Hearings on S. 1006 Before Subcomm. On Patents, Trademarks and Copyrights of the Senate Comm. On the Judiciary*, 89th Cong., 1st Sess. 66 (1965); Litman, *supra* note 29, at 873; *see also* 122 CONG. REC. 31,982 (1976) (Congressman Railsback describing the bill as a "compromise of compromises").

dichotomy, which prevented people from claiming copyright protection in an "idea, procedure, process, system, method of operation, concept, principle, or discovery."[37] Section 109(a) adopted the first sale doctrine, which allowed lawful owners of copied works to sell or otherwise dispose of their copies.[38] Last, and perhaps the most enigmatic, is section 107's fair use exception to copyright infringement. Under the 1976 Act, "the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords . . . , for purposes such as criticism, comment, news reporting, teaching . . . , scholarship, or research is not an infringement of copyright."[39] Courts determining whether a particular use of a copyrighted work is fair are directed to consider four factors: (1) the purpose and character of the use, (2) the nature of the copyrighted work, (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole, and (4) the effect of the use upon the potential market for or value of the copyrighted work.[40]

By incorporating these doctrines, Congress intended to provide the 1976 Act with flexible limitations to balance the statute's expansive rights and broad subject matter.[41] As with the other provisions of the 1976 Act, the inclusion of these doctrines was also the product of compromise and interest balancing. When an early version of the copyright revision bill omitted any mention of an idea-expression distinction, representatives of educational organizations voiced their concerns and proposed a broad restatement of the idea-expression dichotomy.[42] After publishers and authors opposed, the Senate Subcommittee eventually drafted a narrowly worded provision that would later become section 102(b).[43] The inclusion of the first sale doctrine was also heavily debated between copyright holders, who wanted an explicit rental right that would effectively override the first sale doctrine, and the Copyright office, which

37. 17 U.S.C. § 102(b) (1982); *see* Baker v. Selden, 101 U.S. 99, 105 (1879) ("The description of the art in a book, though entitled to the benefit of copyright, lays no foundation for an exclusive claim to the art itself. The object of the one is explanation; the object of the other is use. The former may be secured by copyright. The latter can only be secured, if it can be secured at all, by letters-patent."). Although *Baker* preceded the Copyright Act of 1909, that statute did not include any provision describing the kinds of subject matter that could not be copyrighted. Stacey H. King, *Are We Ready to Answer the Question?:* Baker v. Selden, *the Post-*Feist *Era, and Database Protections*, 41 IDEA 65, 81 (2001).

38. 17 U.S.C. § 109(a) (1982) ("[T]he owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord."). This doctrine was established by the Supreme Court in *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339, 350 (1908) (holding that copyright does not secure to the owner "the right, after a sale of the book to a purchaser, to restrict future sales of the book at retail, to the right to sell it at a certain price per copy").

39. 17 U.S.C. § 107 (1982).

40. *Id.* Judge Story's opinion in *Folsom v. Marsh*, 9 F.Cas. 342 (C.C. Mass. 1841) was probably the first articulation of the fair use concept. *See* GORMAN, *supra* note 28, at 139. In that case, Judge Story held that the use of a copyrighted work may be fair if not "so much is taken, that the value of the original is sensibly diminished, or the labors of the original author are substantially to an injurious extent appropriated by another" and depended upon a consideration of "nature and objects of the selections made, the quantity and value of the materials used, and the degree in which the use may prejudice the sale." *Folsom*, 9 F.Cas. at 348.

41. Jessica Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275, 342 (1989).

42. *Id.* at 335.

43. *Id.*

initially called for a very robust first sale right.[44] Congress ultimately adopted a broad display right, but subjected that right to a limited first sale doctrine.[45]

The process of codifying of the fair use doctrine best exemplified Congress's commitment to obtaining a balanced statute through bargaining by affected parties. Already a controversial judicial doctrine, efforts to draft a fixed definition of fair use inspired further controversy due to disagreement about the scope of fair use under then-existing law.[46] As a result, the "wording of the fair use provision, and the language of the committee reports accompanying it, emerged from a hard fought compromise involving protracted, down-to-the-wire negotiations among representatives of authors, composers, publishers, music publishers, and educational institutions."[47] While the parties finally agreed on the language of the fair use exemption, they failed to agree on what the language meant.[48]

Although this system of brokered compromises established a balanced copyright law at the time of the 1976 Act's enactment, the negotiation process suffered from a major flaw—Congress could not to bring users and producers of future communications technology to the bargaining table. Going forward, these unrepresented parties face the most uncertainty about their rights. This omission constitutes a slight flaw that becomes more glaring with every technological advance. In contrast, authors, musicians, and other content producers enjoy copyrights regardless of the transmission medium.[49]

Even if Congress could have fathomed the implications of some future technologies, it seemed content to allow courts to use their "equitable rule of reason" and apply the 1976 Act accordingly.[50] Aside from section 108's limitations on the extent to which libraries could make photocopies,[51] Congress did not address whether individuals who used new technologies to make private copies of copyrighted works violated the 1976 Act.[52] Indeed, copyright law has traditionally been about public places and commercial interests: public rather than private performances infringe copyright, noncommercial rather than commercial uses are more likely to be fair uses, and a prima facie claim of infringement requires that the copyright owner show economic harm.[53] The issue of private copying threatened to shift the traditional paradigm of

44. *Id.* at 338-39.

45. *Id.* at 339.

46. Litman, *supra* note 29, at 875-76.

47. *Id.* at 869.

48. *Id.* at 877.

49. *See id.* at 883 ("All uses not expressly exempted remained within the control of the copyright owner. The bill, therefore, solved the problem of defining the rights in uses made possible through future technology by reserving those rights to the copyright owner.").

50. *Id.* at 898.

51. 17 U.S.C. § 108 (1982).

52. *See* GOLDSTEIN, *supra* note 11, at 132 ("The silence of Congress on the issue of private copies has left a black hole in the center of American copyright legislation."). The legislative history is also equivocal on this point. While House and Senate reports hinted that tape recording from a broadcast would not automatically qualify as fair use, a dialogue on the House floor between Congressman Abraham Kazen, Jr. and the chair of the House Intellectual Property subcommittee Robert Kastenmeier suggests the opposite. *Id.*

53. *Id.* at 131.

copyright law. Consequently, Congress was extremely reluctant to introduce new provisions dealing with technological advancements, like whether home recordings using the recently introduced home videocassette recorders constituted infringement, for fear of undermining the fragile compromises already in place.[54]

As one of only two general limiting principles to the 1976 Act,[55] courts have resolved many cases, including questions about private copying,[56] under the fair use doctrine.[57] Judicial development of the fair use doctrine would eventually recognize two different categories of fair uses: those that were "transformative" of copyrighted source material and those that involved the use of new technologies of copying and dissemination.[58] While more transformative uses are more likely found to be fair, the use of new technology to efficiently duplicate copyrighted works is fair when the rights of a copyright owner is outweighed by the "public interest in increasingly inexpensive access and the resulting intellectual enrichment that the new technologies can afford."[59] Using the 1976 Act's fair use factors, courts have found that "time-shifting,"[60] decompiling code for the purposes of reverse engineering,[61] and thumbnailing pictures[62] constitute fair uses. In contrast, the creation of course packs for educational purposes,[63] peer-to-peer file sharing,[64] and "place-shifting"[65] constitute copyright infringement.

Current Supreme Court doctrine recognizes a constitutional basis for the 1976 Act's limitations on the scope of copyrights. In *Harper & Row Publishers, Inc. v. Nation Enterprises*, the Supreme Court recognized that "copyright's idea/expression dichotomy strike[s] a definitional balance between the First Amendment and the Copyright Act by permitting free communication of facts while still protecting an author's expression."[66] Since the 1976 Act already internalized First Amendment concerns, the Court rejected the defendant's argument that the First Amendment limited the scope of copyright law.[67] The

54. *Id.* at 143-44.

55. Litman, *supra* note 29, at 886. The other general limiting principle is the idea-expression dichotomy. *Id.*

56. The Supreme Court eventually addressed the issue of home recordings in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 454 (1984), and held that private videotape recording of copyrighted material for the purposes of non-commercial time-shifting was a fair use.

57. *See* Stanford Copyright & Fair Use - Summaries of Fair Use Cases, http://fairuse.stanford.edu/Copyright_and_Fair_Use_Overview/chapter9/9-c.html (last visited Mar. 2, 2010) (listing and summarizing a number of cases that have determined whether certain uses are fair).

58. *See* GORMAN, *supra* note 28, at 148.

59. *Id.* at 151.

60. *Sony Corp.*, 464 U.S. 417, 454-55 (1984).

61. Sega Enters., Ltd. v. Accolade, Inc., 977 F.2d 1510, 1527-28 (9th Cir. 1992).

62. Kelly v. Arriba Soft Corp., 280 F.3d 934, 944 (9th Cir. 2002).

63. Basic Books, Inc. v. Kinko's Graphics Corp., 758 F. Supp. 1522, 1547 (S.D.N.Y. 1991); Princeton University Press v. Michigan Document Servs., Inc., 99 F.3d 1381, 1392 (6th Cir. 1996) (en banc).

64. A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1019 (9th Cir. 2001).

65. UMG Recordings, Inc. v. MP3.Com, Inc., 92 F. Supp. 2d 349, 352 (S.D.N.Y. 2000).

66. 471 U.S. 539, 556 (1985) (internal citation and quotation omitted).

67. *Id.* at 560.

Supreme Court in *Eldred v. Ashcroft* also recognized that the fair use exception supports First Amendment values by "afford[ing] considerable latitude for scholarship and comment, and even for parody."[68]

By relying on both the idea-expression dichotomy and fair use to overcome First Amendment concerns, the implication is that "the availability of fair use is central to the constitutional basis of copyright protection."[69] Even more, the Supreme Court in *Cambpell v. Acuff-Rose Music, Inc.* recognized fair use as "necessary to fulfill copyright's very purpose, '[t]o promote the Progress of Science and useful Arts.'"[70] The idea-expression dichotomy and the fair use exception are therefore not just good policies—they are also constitutionally mandated.

Digital Millennium Copyright Act

Notwithstanding the existing 1976 Act and over twenty years of copyright doctrine created by judicial accretion, Congress enacted the Digital Millennium Copyright Act ("DMCA") in 1998 to help combat the rising threat of digital piracy.[71] Under the DMCA, the circumvention of a "technological measure that effectively controls access to a work protected" by copyright and the trafficking of any device that generally circumvented such a technological access control was prohibited.[72] In addition, the DMCA proscribed the trafficking of any device that circumvented a "technological measure that effectively protects a right of a copyright owner."[73]

The DMCA's protection of "technological measures," which have variously been called a "technological protection measure" ("TPM") or "digital rights management" ("DRM"), was prompted by two sources. First, the World Intellectual Property Organization Copyright Treaty ("WCT") required that member nations "provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures."[74] The WCT, however, left the precise means of protecting TPMs up to the member nations.

The substance of the DMCA's provisions traces its origins to a report by the

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> In view of the First Amendment protections already embodied in the Copyright Act's distinction between copyrightable expression and uncopyrightable facts and ideas, and the latitude for scholarship and comment traditionally afforded by fair use, we see no warrant for expanding the doctrine of fair use to create what amounts to a public figure exception to copyright.

Id.

68. 537 U.S. 186, 220 (2003) (internal citations and quotations omitted).

69. Stephen M. McJohn, Eldred's *Aftermath: Tradition, the Copyright Clause, and the Constitutionalization of Fair Use*, 10 MICH. TELECOMM. & TECH. L. REV. 95, 130 (2003).

70. 510 U.S. 569, 575 (1994).

71. LAWRENCE LESSIG, CODE VERSION 2.0 173-74 (2006).

72. 17 U.S.C. § 1201(a)(1)-(2) (2006).

73. 17 U.S.C. § 1201(b) (2006).

74. World Intellectual Property Organization Copyright Treaty art. 11, Dec. 20, 1996, WIPO Doc. CRNR/DC/94, available at http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html#P87_12240.

Clinton administration on Intellectual Property and the National Information Infrastructure (the "White Paper").[75] The White Paper anticipated that copyright owners would use TPMs for digital media products or services and recommended the ban of circumvention technologies that would bypass the TPMs.[76] Insofar as circumvention tools were necessary to engage in fair and other non-infringing uses of content guarded by TPMs,[77] the proposed ban seemed to be at odds with the ends of copyright law.[78]

Nevertheless, the White Paper was dismissive about the effects of anti-circumvention rules on the public domain and the doctrine of fair use.[79] Copyright owners also favored a broad ban because they feared that exempting circumvention technologies for the ostensible purpose of enabling fair uses was too likely to enable massive infringements.[80]

Congress followed some of the recommendations of the White Paper when enacting the DMCA.[81] The legislative history indicates that Congress was very concerned about the risk of piracy on a massive scale and thought that the implementation of anti-circumvention rules was an appropriate response.[82] Given the speed with which new digital technologies could be used to both reproduce and transmit near-perfect copies of digital media, Congress apparently concluded that it was important to support the efforts of copyright owners by preventing infringement at the outset rather than merely allowing right holders to seek judicial relief.[83] Congress largely disregarded the objections of public interest groups, both because of their weaker lobbying clout and because of the speculative nature of their fears in light of the primitive state of TPMs at that time.[84]

Congress, however, did carve out a few exceptions to the general anti-circumvention rules to protect fair use. First, the DMCA did not regulate the circumvention of rights controls, which could theoretically allow a user to bypass a TPM that prevented unauthorized copying rather than unauthorized access.[85] In addition, section 1201(d) created three specific public interest exceptions allowing libraries, archives, and educational institutions to bypass

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75. Jerome H. Reichman et al., *A Reverse Notice and Takedown Regime to Enable Public Interest Uses of Technically Protected Copyrighted Works*, 22 BERKELEY TECH. L. J. 981, 988, 995 (2007).

76. Reichman et al., *supra* note 75, at 995.

77. Broadly defined, the concept of non-infringing uses includes "recording works that are not protected by copyright, recording works that have entered the public domain, recording with permission of the copyright owner, and, of course, any recording that qualifies as fair use." *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 492 n.43 (1984) (Blackmun, J., dissenting).

78. Reichman et al., *supra* note 75, at 996, 1004.

79. *Id.* at 995.

80. *Id.* at 1003.

81. *See* LESSIG, *supra* note 71, at 174 ("Congress followed the recommendations of the 1995 White Paper in some respects. The most important was the enactment of the Digital Millennium Copyright Act in 1998.").

82. *See* S. Rep. No. 105-190, at 8 (1998) ("Due to the ease with which digital works can be copied and distributed worldwide virtually instantaneously, copyright owners will hesitate to make their works readily available on the Internet without reasonable assurance that they will be protected against massive piracy.").

83. GORMAN, *supra* note 28, at 181.

84. Reichman et al., *supra* note 75, at 1004.

85. *Id.*

TPMs in order to make a "good faith determination of whether to acquire a copy of that work" for otherwise legal uses.[86] Congress also authorized the Librarian of Congress to examine "the impact that the prohibition on the circumvention of technical measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research" and to create new exceptions from the ban on circumvention to enable public interest uses of copyrighted works when users show that they "are, or are likely to be . . . adversely affected" by the use of TPMs.[87] Most generally, section 1201(c)(1) states that "[n]othing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title."[88]

Criticisms of the Digital Millennium Copyright Act

Since its enactment in 1998, critics argue that these exceptions to the DMCA constitute token protections of fair and other non-infringing uses. Courts have already recognized that the DMCA also prohibits circumvention for the purpose of making a fair use because users always have the ability to create analog copies.[89] While section 1201(c)(1) purports to preserve fair use, it does not act as a defense against circumvention in the same way that fair use is a defense against copyright infringement.

Even more, through the use of technology and law, copyright owners can effectively prevent bona fide non-infringing users from making fair uses of content protected by access control TPMs.[90] If an access control TPM blocks a user from making fair use of the underlying content, and the DMCA prohibits the circumvention of that TPM, then that user cannot make a fair use of the underlying work without being subject to a prima facie violation of the DMCA. In this way, copyright owners "arguably gain the power to opt out of those parts of the copyright system they dislike," such as compulsory acquiescence to fair use.[91]

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86. 17 U.S.C. § 1201(d) (2006).

87. 17 U.S.C. § 1201(a)(1)(C) (2006).

88. 17 U.S.C. § 1201(c)(1) (2006).

89. *See* Universal City Studios, Inc. v. Corley, 273 F.3d 429, 459 (2nd Cir. 2001) ("Fair use has never been held to be a guarantee of access to copyrighted material in order to copy it by the fair user's preferred technique or in the format of the original."). Regarding the creation of analog copies as an exception to the DMCA itself, the court states:

> [T]he DMCA does not impose even an arguable limitation on the opportunity to make a variety of traditional fair uses of DVD movies, such as commenting on their content, quoting excerpts from their screenplays, and even recording portions of the video images and sounds on film or tape by pointing a camera, a camcorder, or a microphone at a monitor as it displays the DVD movie.

Id.; *see also* U.S. v. Elcom Ltd., 203 F. Supp. 2d 1111, 1131 (N.D. Cal. 2002) ("It may be that from a technological perspective, the fair user may find it more difficult to do so-quoting may have to occur the old fashioned way, by hand or by re-typing, rather than by 'cutting and pasting' from existing digital media. Nevertheless, the fair use is still available.").

90. Reichman et al., *supra* note 75, at 1023.

91. *Id.*

It is not an answer to say that users may circumvent TPMs that do not control access. If copyright owners wish to wield greater control over their intellectual property, then they have a strong incentive to use and develop access controls rather than copy controls. Furthermore, although the Librarian of Congress has the discretion to exempt circumvention, scholars suggest that it has been unable to handle the monumental task of evaluating legitimate instances of circumvention at the necessary pace.[92]

Even if copyright owners want their TPMs to recognize fair uses, the nature of TPM software makes implementing a fair use backdoor difficult. While TPMs operate under inflexible rules by "stat[ing] precise conditions under which certain uses of the media will or will not be allowed," fair use is a standards-driven concept that is not easily reducible to hard rules that can then be pre-programmed into a TPM.[93]

Not everyone believes the potential demise of the fair use exception should be prevented. Some scholars understand fair use as an antiquated response to market failures that occur when the transaction costs from obtaining permission from the copyright owner exceeds the benefits of the socially beneficial use.[94] Since the market cannot effectuate such transactions, society errs on the side of free usage of copyrighted material.[95] TPMs, however, lower transaction costs by allowing copyright owners to offer and charge for access to their works under a variety of different conditions.[96] Insofar as technology such as TPMs can deal with this problem by lowering transaction costs, the doctrine of fair use should be reduced in scope.[97]

The use of TPMs to offer different levels of access to content is certainly advantageous for the copyright owner, who no longer has to worry about the uncertainty and expense of litigating fair use claims. Consumers would also benefit because they can develop precise expectations about what uses are and are not allowed and determine if such uses are worth the price.[98] Uses that truly

92. *See id.* at 1008.

93. James Grimmelman, Note, *Regulation by Software*, 114 YALE L.J. 1719, 1752-53 (2005) (noting the argument that "fair use is and ought to be a standard and not a rule because only a standard will be attuned to individual equities. We should not expect a rule to capture all the subtleties of human creativity or all the possible uses we might wish to call fair."); *see also* Timothy K. Armstrong, *Digital Rights Management and the Process of Fair Use*, 20 HARV. J.L. & TECH. 49, 53 (2006) ("We cannot have a 'judge on a chip' – an electronic system that balances the statutory factors (and whatever nonstatutory factors a human judge would consider) and unerringly produces the same decision that a human judge would render in any individual case.").

94. Tom W. Bell, *Fair Use v. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*, 76 N.C. L. REV. 557, 583 (1998). Professor Bell's article was written shortly before the enactment of the DMCA. He believed, however, that the DMCA's provisions were excessive. *See id.* at 593 ("Because [the DMCA] would outlaw methods of squeezing fair use out of ARM-protected works, it would penalize the exercise of rights guaranteed by the Copyright Act.").

95. *See* Wendy J. Gordon, *Fair Use As Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors*, 82 COLUM. L. REV. 1600, 1601 (1982) ("[C]ourts and Congress have employed fair use to permit uncompensated transfers that are socially desirable but not capable of effectuation through the market.").

96. Bell, *supra* note 94, at 564.

97. *Id.* at 583-84.

98. *See* Grimmelman, *supra* note 93, at 1752 ("[T]o the extent that the allowable uses of media protected by DRM systems are made clear, consumers can develop precise expectations about what uses are and are not allowed.").

are socially beneficial will eventually be offered at appropriate price points because consumers should be willing and able to efficiently pay for them.[99]

The difficulty with this view is that it overestimates the ability of the copyright owner to anticipate the kinds of uses consumers will want to make of the work in the future.[100] Given the depth of human creativity and the rapid advancements in technology enabling even more uses of content, a copyright owner would have to incur additional transaction costs from constantly making new access licenses to the same underlying content available. Not only would it be impractical for the copyright owner to offer a constantly expanding stock of access licenses to the same underlying content,[101] but consumers would likely be confused by the multiplicity of options. The aforementioned flexibility limitations of TPMs will also prevent copyright owners from fine-tuning access licenses based on standards. As a result, copyright owners are likely to make only a few access licenses available to the market. Finally, the efficiency gains promised by granting more complete property rights over information are highly speculative and many economists remain skeptical that such measures will lead to a net social benefit.[102]

Aside from these practical issues, there are Constitutional considerations as well. Because fair use implicates First Amendment concerns, the doctrine's emasculation may not be acceptable after the Supreme Court's decision in *Eldred*.[103] Furthermore, neither Congress nor the Constitution has ever treated intellectual property the same as real property.[104] Rather, intellectual property is protected only insofar as protection is necessary to "promote the Progress of Science and useful Arts."[105] Even if all copyright owners object to fair use ex ante, it still does not constitute infringement under the 1976 Act. The

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99. Bell, *supra* note 94, at 590.

100. *See* Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV. J.L. & TECH. 41, 56 (2001) (expressing doubt regarding the ability of system designers to "anticipate the range of access privileges that may be appropriate for fair uses to be made of a particular work").

101. Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 434 (1999).

> [A]s Coase taught us, entitlements do matter in the presence of transaction costs. In individual transactions, the value of the transaction may well be high enough to justify negotiation costs. But in the context of mass market products, sold with mass market standard contracts, the costs of negotiating individual variances can be enormous. Form contracts are developed precisely to avoid these costs. Given high transaction costs, entitlements will remain where they are originally located.

Id.

102. *See* LESSIG, *supra* note 71, at 184 ("Economists have long understood that granting property rights over information is dangerous . . . [T]here is no way to know, in principle, whether increasing or decreasing the rights granted under intellectual property law will lead to an increase in the production of intellectual property.").

103. *See supra* notes 68-69 and accompanying text.

104. *See* LESSIG, *supra* note 71, at 184 (comparing the Constitution's protection of real property under the Fifth Amendment Takings Clause with the protection of intellectual property and noting that while Congress must compensate owners if it decided to nationalize all property after a term of ownership, there is no requirement to compensate owners of intellectual property when it falls into the public domain after the expiration of a statutory term).

105. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 575 (1994).

implication is that fair use imparts significant societal benefits beyond that of saving on transaction costs.[106] Conflating the two concepts of "property" by assisting copyright owners in their efforts to commodify or restrict fair uses would be a radical departure from established practice.[107]

A related criticism of the DMCA is that the statute's overly robust protection of TPMs facilitates copyright owners' attempts to supersede copyright law with a regime of TPM-enforced contract law. Property, both real and intellectual, is "protected by the sum of the different protections that law, norms, the market, and real-space code yield."[108] Prior to the advent of TPMs, copyright owners fought infringement by using the legal remedies provided by copyright law.[109] Going forward, the use of TPMs will increasingly displace copyright law as the primary defense of intellectual property in cyberspace.[110]

Not only can TPMs thwart bona fide fair users from even gaining access to the underlying content, but the same TPMs can channel would-be non-infringing users to "an electronic gateway, where electronic contracts of adhesion will condition entry on a waiver of all the users' rights that [they] might otherwise put forward to justify access to and use of the information product in question."[111] At this point, users are contractually bound not to engage in fair or other non-infringing uses.[112] Even if the DMCA permitted circumvention for non-infringing purposes, it will be difficult to know ex ante whether circumvention is justified when a prospective non-infringing user cannot see past the access control protecting the underlying work.[113]

Strictly construed, the DMCA's anti-circumvention provisions also seem to apply as long as the TPM controls access to at least one work protected by copyright.[114] This suggests that a user violates the DMCA by circumventing a TPM even when gaining access to a non-copyrightable work so long as the same TPM also protects another copyrighted work.[115]

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106. GOLDSTEIN, *supra* note 11, at 224 ("[S]ome of the 1976 Act's exemptions are there, not because of transaction costs, but because certain uses and users serve socially valuable ends.").

107. Even outside the context of intellectual property, overpropertization on the internet has been hotly debated by both courts and scholars. *See* Intel Corp. v. Hamidi, 71 P.3d 296 (2003) (finding no liability where a user who sends objectionable content to Intel's employees through Intel's server in the absence of actual or threatened harm of Intel's server); Patricia L. Bellia, *Defending Cyberproperty*, 79 N.Y.U. L. REV. 2164, 2194-2210 (2004) (arguing that giving a system owner a right to set the terms of access to an online resource is at least necessary to guard against economically harmful access and that such cyberproperty rights do not inevitably lead to closed channels).

108. *See* LESSIG, *supra* note 71, at 171.

109. *See id.* at 172 (illustrating the law's response to technological advances that enabled new unauthorized uses of copyrighted work previously not covered by copyright law).

110. *Id.* at 175. While a copyright owner's right was once eroded by technological advances, modern advances in TPMs enhance a copyright owner's right. *Id.* at 172, 175.

111. Reichman et al., *supra* note 75, at 1022.

112. *Id.*

113. *See id.* ("Insofar as section 1201(c) permits circumvention for privileged purposes, this will arguably only kick in after lawful access has been gained. Yet, by then, user rights have been abrogated by contract, and it may already be too late to hack through the electronic fence prohibited by section 1201.").

114. *See* 17 U.S.C. § 1201(d) (2006) ("No person shall circumvent a technological measure that effectively controls access to a work protected under this title.").

115. While it can be argued that obtaining access to a copyrighted work is a necessary condition

Scholars worry that a widespread regime where access to works is tightly controlled by TPMs and contracts will erode the default legislative regime.[116] Under the law of copyrights, Congress balanced the interests at stake in a way that it thought was optimal for society, even though not every side got what it wanted.[117] Since contractual provisions can protect works and uses not covered by copyright, an author that utilizes access control TPMs can bind readers to restrictive licenses that prohibit fair or non-infringing uses.[118]

Assuming that the legislative scheme was already efficient, it would be inefficient for society to allow private actors to vary legislatively enacted rules.[119] Prior to TPMs, the proliferation of contracts of adhesion was not as problematic because ordinary contracts were not self-enforcing.[120] Contractual terms were always subject to judicial review, which offered the possibility that a court would refuse to enforce a contract for lack of mutuality,[121] for being deceptive,[122] or for otherwise being contrary to public policy. Additionally, there was always the possibility of an efficient breach.

Automated contracts enforced by TPMs, on the other hand, act like an "infallible 'injunction' controlled completely by one party."[123] To the extent that such TPMs work, they bypass judicial review.[124] To the extent that such TPMs are circumvented, the transgressors violate the DMCA. Consequently, contracts enforced by TPMs can provide even more power to copyright owners than either copyright or contract law.

When "automated contracts enforced by TPMs" become the dominant

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for the violation of the DMCA, but § 1201 seems to protect the technology rather than the copyrighted work itself. So, although TPM protection is the means by which Congress intended to enhance the protection of copyrights, a prima facie violation occurs only after an act of circumvention—not copyright infringement.

116. Margaret Jane Radin, *Regulation by Contract, Regulation by Machine*, 160 J. OF INSTITUTIONAL & THEORETICAL ECON. 1, 10 (2004), *available at* http://ssrn.com/abstract=534042 ("The advent of [TPMs] has the potential to read out the regulatory contouring of contract just as the advent of ubiquitous superseding entitlement regimes has the potential to read out the regulatory contouring of property.").

117. *See supra* notes 34-36, 42-48 and accompanying text. *See also infra* note 163 and accompanying text.

118. *See* ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1453-55 (7th Cir. 1996) (holding that a contractual restriction on the use of intellectual property is not preempted by federal copyright law); Bowers v. Baystate Technologies, Inc., 320 F.3d 1317, 1323-26 (Fed. Cir. 2003) (holding that a shrinkwrap agreement can prevent a purchaser of software from reverse engineering it to view the source code, even though reverse engineering is a fair use); Christina Bohannan, 67 MD. L. REV. 616, 618 (2008) ("[C]ourts virtually never preempt these contracts [on the basis of federal copyright law], no matter how much their terms conflict with the [Copyright] Act's provisions. Courts reason that because contracts contain an element of agreement and bind only those in privity, contract claims are qualitatively different from copyright claims.").

119. *See* Radin, *supra* note 116, at 7-8.

120. LESSIG, *supra* note 71, at 187-88.

121. *See* Specht v. Netscape Commc'ns Corp., 306 F.3d 17, 35 (2d Cir. 2002) (holding a clickwrap agreement unenforceable for lack of mutuality because the inconspicuous terms were located on other web pages and were accessible only through hyperlinks).

122. *See* People v. Network Assocs., Inc., 758 N.Y.S.2d 466, 470 (N.Y. Sup. Ct. 2003) (finding a software licensing agreement to be deceptive).

123. Radin, *supra* note 116, at 11.

124. *See* LESSIG, *supra* note 71, at 188 ("[W]here do we challenge the code? When the software protects without relying in the end on the state, where can we challenge the nature of the protection? Where can we demand balance when the code takes it away?").

model by which access to digital content is obtained, copyright owners can get a better deal than they could with copyright law.[125] If such a hybrid scheme is enacted over a large segment of the population, then the Constitutional or statutory rights of those people have effectively been superseded.[126]

It can be argued that the social harm coming from consumers that are subjected to alternative allocations of rights through contracts of adhesion is limited due to the possibility that such harmful agreements will be preempted by legislative action.[127] Additionally, copyright owners have an incentive not to be too restrictive, or else they risk losing potential sales to competitors who offer more expansive use rights.[128]

The assertion that copyright owners will not overprotect their works to the detriment of both society and their future economic interests, however, is speculative at best. Copyright owners probably do not care to make their works available for free in order to "promote the Progress of Science and useful Arts." As shown by the various lawsuits against parodists, some if not most copyright owners already abhor the prospect of having their works being the subject of social commentary or public criticism. Furthermore, as mentioned above, it is unlikely that the market will provide a way to charge for all or future uses of content.

Most troubling of all is the past record of copyright owners' attempts to protect their works against then-novel uses of copyrighted property that later turned out to be beneficial, such as radio broadcasting[129] and VHS players.[130]

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125. *See id.* ("The balance struck by the law was the best that authors could get. But now, code gives authors a better deal. The question for legal policy is whether this better deal makes public sense.").

126. Radin, *supra* note 116, at 6.

127. *See* Bell, *supra* note 94, at 608 ("It hardly answers this objection to observe that parties can bargain away from fair use to agree to alternative allocation of rights—not, at least, so long as lawmakers stand ready to preempt certain of those agreements.").

128. *See id.* ("Given the likelihood that fared use will force information providers to compete for consumers by offering them attractive terms of access, and that decreasing communication costs will encourage consumer communication and self-help, we should not assume that fared use will decrease consumers' bargaining power."). Again, Professor Bell's article predates the DMCA. As a result, the consumer "self-help" he refers to is now a violation of the DMCA's anti-circumvention provisions.

129. In the early days of radio, the American Society of Composers, Authors and Publishers (ASCAP) aggressively pursued claims against those who broadcast their members' music without licenses. *See* GOLDSTEIN, *supra* note 11, at 72. ASCAP then attempted to increase license fees, arguing that radio performances were cutting into members' record and sheet music sales. *Id.* at 73. Radio broadcasters argued that radio play actually boosted sales of sheet music and records by providing what amounted to free advertising. *Id.* After an impasse in 1941, ASCAP music went off the air. *Id.* at 74. Shortly thereafter, ASCAP members lost revenues from the sale of records and sheet music, thus validating the broadcasters' claim. *Id.*

130. The film industry sued to enjoin the sale of videotape players/recorders on the basis of contributory liability for copyright infringement in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). Since then, revenues from VCR usage have proven very lucrative for the film industry. Dean Marks, senior intellectual property counsel for Time Warner, recalls:

> When the video cassette recorder was introduced, the film industry got together and brought the famous, or infamous, Betamax case thinking that these VCRs were going to destroy the economic basis of film distribution, particularly theatrical exhibition and profitable television distribution. What actually happened was just the opposite. With the introduction of video cassette recorders came the advent of pre-recorded video

Even when there is profit to be made, copyright owners are reluctant to allow others to experiment with their works. As a psychological matter, right owners seem reluctant to make expansive uses of their intellectual property available and are thus likely to overprotect their works as a group.[131] Given this historical propensity, the free market for digital content cannot be expected to make what would otherwise be fair uses of intellectual property available.

II. CLOUDS—FULL STEAM AHEAD

As defined by the National Institute of Standards and Technology, cloud computing is "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."[132] The term "cloud computing" is a metaphor for an ethereal internet that provides "anywhere access" to digital content.[133] Under the software-as-a-service ("SaaS") model of cloud computing, a user can obtain the software functionality of a personal computer through any web browser connected to a "cloud."[134]

For most people, cloud computing promises a worry-free user experience.[135] So long as a user can browse the internet, there is no additional investment required to use a cloud.[136] Because the cloud service provider deals

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cassettes. This has become one of the most profitable channels of distribution for the film industry.

Conference, *Digital Technology and Copyright: A Threat or a Promise?*, 39 IDEA 291, 305 (1999).

131. *See* GOLDSTEIN, *supra* note 11, at 224-25 (expressing the expectation that "copyright owners [will] try to circumvent these copyright exemptions by contract").

132. PETER MELL & TIM GRANCE, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, NIST DEFINITION OF CLOUD COMPUTING v15 1 (2009), http://csrc.nist.gov/groups/SNS/cloud-computing/cloud-def-v15.doc [hereinafter NIST DEFINITION].

133. David A. Couillard, Note, *Defogging the Cloud: Applying Fourth Amendment Principles ot Evolving Privacy Expectations in Cloud Computing*, 93 MINN. L. REV. 2205, 2216 (2009). *See* Fowler & Worthen, *supra* note 3 ("Despite its recent surge in popularity, the cloud is among the oldest pieces of computer jargon . . . . For decades, engineers drew them in schematic diagrams to show where their own network joins another whose inner workings are unknown or irrelevant [and symbolized it] with a cloud, or some amorphous shape . . . .") (internal quotations omitted). Cloud computing should be distinguished from "Web 2.0." CHRISTOPHER BARNATT, CLOUD COMPUTING (2010), http://www.explainingcomputers.com/cloud.html ("[T]he key concept of Web 2.0 is making new forms of online connection between people, services and applications, whilst the key concept of cloud computing is the detachment of computing resources from any even notional location.").

134. *See* NIST DEFINITION, *supra* note 132, at 2 (defining Cloud Software as a Service); JONATHAN STRICKLAND, HOWSTUFFWORKS, HOW CLOUD COMPUTING WORKS (2008), http://communication.howstuffworks.com/cloud-computing1.htm ("In theory, a cloud computing system could include practically any computer program you can imagine, from data processing to video games."); Randal C. Picker, Competition and Privacy in Web 2.0 and the Cloud, 103 NW. U. L. REV. COLLOQUY 1, 3 (2008) ("Instead of storing my email on my laptop, I will just outsource storage and store it with Google. I won't have an email product resident on my computer; instead, Google will provide an email service through a Web browser.").

135. *See* Dave Convery, *What is Cloud Computing? I Don't Care!!*, DAILY HYPERVISOR, Sept. 24, 2009, http://www.dailyhypervisor.com/2009/09/24/what-is-cloud-computing-i-dont-care/ ("I don't care where it is. I don't care about the hardware. I don't care how it got there. I don't care how it [sic] cooled. . . . I DO care that it is there when I need it and is reasonably responsive from anywhere at any time.").

136. ERIC KNORR & GALEN GRUMAN, WHAT CLOUD COMPUTING REALLY MEANS,

with all the hardware and software that actually run cloud-based applications, cloud computing frees the user from maintaining and upgrading the local computer.[137] Storing data on clouds is also considered safer because cloud service providers typically utilize redundant backup systems.[138]

These features have already led to widespread adoption of cloud computing. A number of public cloud applications are already available for tasks such as word processing, e-mail, video storage and playback, and data storage.[139] Businesses are finding pay-per-use cloud models useful due to their instant access, scalable IT resources, and lower cost.[140]

From the perspective of cloud service providers, running applications on their own systems provides distinct advantages. First, cloud service providers have control over the content that they make available and can monitor usage statistics.[141] Cloud providers can also dictate the terms of access (or restriction) to the content that they choose to make available. These attributes provide different access plans, such as the pay-per-use model or an ad-supported free access model. These same attributes make cloud computing very appealing to copyright owners. Not only does SaaS cloud computing offer a cheaper and more secure distribution model, the ability to directly tap the buying preferences of consumers will allow copyright owners to "channel their investments more precisely to meet these newly articulated patterns of demand."[142] In this way, the development of cloud content delivery systems can lead to the kind of market efficiency that motivated legislatures to adopt

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http://www.infoworld.com/d/cloud-computing/what-cloud-computing-really-means-031 (last visited Mar. 2, 2010) ("On the customer side, it means no upfront investment in servers or software licensing . . . ."); *see* Couillard, *supra* note 133 ("Cloud platforms give users 'anywhere access' to applications and data stored on the Internet.").

137. BARNATT, *supra* note 133.

138. STRICKLAND, *supra* note 134. Recent service outages and data losses have been widely publicized. *See, e.g.*, Daniel E. Dilger, *Microsoft's Danger Sidekick Data Loss Casts Dark on Cloud Computing*, APPLEINSIDER, Oct. 11, 2009, http://www.appleinsider.com/articles/09/10/11/microsofts_danger_sidekick_data_loss_casts_dark_on_cloud_computing.html; Ben Treynor, More on Today's Gmail Issue (Sept. 1, 2009), http://gmailblog.blogspot.com/2009/09/more-on-todays-gmail-issue.html.

139. *See, e.g.*, Google Docs, http://docs.google.com/ (last visited Mar. 2, 2010); Yahoo! Mail, http://mail.yahoo.com/ (last visited Mar. 2, 2010); YouTube, http://www.youtube.com/ (last visited Mar. 2, 2010); Amazon S3, http://aws.amazon.com/s3/ (last visited Mar. 2, 2010).

140. Alan Radding, *Cloud Computing for the Mainframe: Will It Ever Cross the Chasm?*, MAINFRAME EXECUTIVE, Sept. 10, 2009, http://www.mainframezone.com/it-management/cloud-computing-for-the-mainframe-will-it-ever-cross-the-chasm.

141. Upon login, a subscriber of Google's webmail service can expect the following treatment:

> When you use Gmail, Google's servers automatically record certain information about your use of Gmail. Similar to other web services, Google records information such as account activity (including storage usage, number of log-ins), data displayed or clicked on (including UI elements, ads, links); and other log information (including browser type, IP-address, date and time of access, cookie ID, and referrer URL).
>
> . . . .
>
> . . . The Gmail service includes relevant advertising and related links based on the IP address, content of messages and other information related to your use of Gmail.

Gmail Privacy Notice, http://mail.google.com/mail/help/privacy.html (last visited Mar. 2, 2010).

142. GOLDSTEIN, *supra* note 11, at 200. Professor Goldstein anticipated the development of cloud computing and called it the "celestial jukebox." *Id.*

copyright laws in the first place.[143]

Even so, a dark cloud looms on the horizon. Although this precise issue has yet to be addressed in court, a cloud likely constitutes an access control TPM under DMCA section 1201(a). Since access to the underlying content inside a cloud can "require[] the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work," a cloud "effectively controls access to a work."[144]

Like other forms of TPMs, cloud computing can also condition access to underlying content on the acceptance of fair use crippling contractual terms.[145] Unlike other forms of TPMs, cloud computing can more effectively combat piracy, provide copyright owners with continuing control over their works, and can be more acceptable to consumers.

Non-linear interactive applications, such as productivity suites and videogames, will become much more difficult to pirate because no local copy of that application will be available.[146] Would-be infringers face the daunting challenge of breaking into the cloud itself to get to the underlying application. On the other hand, programmers wishing to look at the source code behind a cloud-based software application to discern its functional attributes would also be impeded if the cloud does not permit such uses. Even if breaching a cloud's security were possible, ordinary non-hacker users would effectively be deterred from attempting circumvention. Linear media, such as movies or music, remain susceptible to circumvention through the use of stream capturing technology with minimal loss of quality.[147]

The best countermeasure that clouds offer for both linear and non-linear media, however, come from their ability to compete with piracy. Whereas other TPMs that protect locally stored content serve only to limit the functionality of the user's computer or device, cloud computing offers additional value to the consumer. Subscribers may find that the benefits of having on-demand access to an infinite library of remotely stored music outweighs the prospect of storing pirated content locally.

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143. *See id.* ("[T]he celestial jukebox will bring copyright closer than ever to its historic economic objects. Since the Statute of Anne, copyright has aimed at subjecting the production of literary and artistic works to the discipline of market forces.").

144. 17 U.S.C. § 1201(a) (2006). Unauthorized access of a cloud may also constitute a violation of the Computer Fraud and Abuse Act (CFAA), 18 U.S.C. § 1030 (2006). While the CFAA may arguably be justified by concerns over computer crimes and would be authorized by Congress's power under the Commerce Clause, the DMCA implicates a different set of Constitutional norms under the IP clause and the First Amendment.

145. Reichman et al., *supra* note 75, at 1022 (utilizing the example of a web site that directed users to agree to a fair use extinguishing contract, which could very well have been the gatekeeper for a cloud).

146. Matt Martin, *Denis Dyack Part Two*, GAMESINDUSTRY.BIZ,, Dec. 17, 2009, http://www.gamesindustry.biz/articles/denis-dyack-part-two-interview?page=2 ("The great thing about cloud computing and non-linear media is you can protect them on the cloud because it requires two-way input. You can't pirate something you don't have and I think it's the future of our industry.").

147. Anything that is displayed on a monitor or emitted through speakers can potentially be copied by video and sound capture devices. *See* Real Networks, Inc. v. Streambox, Inc., No. 2:99CV02070, 2000 WL 127311, at *4 (W.D. Wash. Jan. 18, 2000) (describing how streamed media was copied despite safeguards).

As mentioned before, the SaaS model of cloud computing also enables content providers to experiment with different business models, such as providing free advertisement-supported access to content.[148] If the main advantage of piracy is being able to obtain content for free, then clouds can allow copyright owners to fight fire with fire and still turn a profit. Advertisers may also be attracted to the idea that a cloud's enhanced user statistics can ensure that advertising will not be wasted on an apathetic audience.[149] While some ad-based music streaming sites have thus far have not been successful,[150] the proliferation of free cloud applications suggests that an advertising model is still feasible.[151] Given that cloud computing represents a better way for copyright owners to both market and protect their intellectual property, they have an enormous incentive to ensure the success of such a distribution model.

To the extent that oppressive terms of use will generally deter consumers from moving to the cloud, such terms may be limited in scope. This does not mean that consumers will refuse to use clouds simply because their fair use rights have been limited. Those that seek to make non-infringing uses of copyrighted content are likely a very small segment of the overall market. If, for example, the vast majority of users only care about the right to play back music, then copyright owners can ignore making other uses of the content available in favor of overprotecting their intellectual property.[152] Even those who were willing to pay for fair uses are frozen out and may turn to illegal circumvention. If circumvention is too difficult or the cost of DMCA liability too high, however, then such people are effectively deterred from making fair uses. This widespread loss of fair use will exact a cost from society.[153]

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148. Interview by Danny Sullivan with Eric Schmidt, CEO, Google, at Search Engine Strategies Conference (Aug. 9, 2006), http://www.google.com/press/podium/ses2006.html (Dr. Schmidt remarking that "cloud computing and advertising . . . go hand-in-hand. There is a new business model that's funding all of the software innovation to allow people to have platform choice, client choice, data architectures that are interesting, solutions that are new - and that's being driven by advertising.").

149. *See* Google AdWords, What is Contextual Targeting?, http://adwords.google.com/support/bin/answer.py? answer=91765 (last visited Mar. 2, 2010) ("[C]ontextually targeted ads provide useful information to readers, and attract an audience with an established interest in your message."). Jack Wanamaker, founder of Wanamaker's department stores, famously remarked "I know I waste half the money I spend on advertising. The problem is, I don't know which half." RANDALL ROTHENBERG, ADVERTISING AGE, THE ADVERTISING CENTURY (1999), http://adage.com/century/rothenberg.html.

150. MySpace recently purchased imeem, an ad-based music streaming site with backing from many major record labels, after advertising revenues proved insufficient to cover royalty payments and operating expenses. Ryan Nakashima, *MySpace Buys Imeem Music Site for Under $1 Million*, USA TODAY, Dec. 8, 2009, http://www.usatoday.com/tech/techinvestor/corporatenews/2009-12-08-myspace-imeem_N.htm.

151. *See, e.g.*, Pandora Frequently Asked Questions, http://blog.pandora.com/faq/contents/63.html (last visited Mar. 2, 2010) ("Pandora's streaming music service is associated with significant costs, including music royalties we pay on **every** song we play. Advertising allows us to cover those costs while offering you a lot of great music for free.") (emphasis in original). Pandora, which can be considered a cloud-based radio service, became profitable in the fourth quarter of 2009 and now projects continued future profitability. Greg Sandoval, *Westergren Keeps Promise: Pandora Profitable*, CNET NEWS, Jan. 12, 2010, http://news.cnet.com/8301-31001_3-10433355-261.html.

152. *See supra* notes 129-31 and accompanying text.

153. As Professor Goldstein describes the problem:

> [S]ome of the 1976 Act's exemptions are there . . . because certain uses and users serve

III. FAIR USE IN THE FOG

The constitutional validity of modern copyright law depends on the continued existence of fair and other non-infringing uses. A widespread regime of extrajudicial TPMs enforcing contractual waivers of fair use threatens the vitality of these constitutionally-rooted exceptions to copyright protection. Doing nothing is not a viable option. According to the reasoning of *Eldred* and *Campbell*, the de facto loss of fair use may prompt the Supreme Court to either find that the DMCA unconstitutionally impinges upon the First Amendment or recognize a constitutional right to fair use.[154] Moreover, legislative inaction is precisely what enables copyright owners to overprotect their works.[155] Rather than allowing the legal rights of copyright owners to rest on a precarious ad hoc judicial solution, Congress should take the initiative to restore the balance established by the Copyright Act of 1976. Congress must enact corrective prophylactic legislation to preserve the public's ability to engage in fair and other non-infringing uses.[156]

The 1976 Act established two axioms: that fair use is not copyright infringement, and that the judiciary determines what uses are fair. Insofar as the DMCA impinges upon these axioms by zealously guarding access to copyrighted work, such measures were arguably necessary in light of the threat of rampant piracy and the primitive TPMs of 1998. More than a decade later, the rise of cloud computing and the future development of other powerful TPMs dampen these piracy-related concerns.[157] Accordingly, the copyright

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> socially valuable ends. . . . If copyright owners try to circumvent these copyright exemptions by contract—and there is every reason to expect they will—Congress will have to reconsider the distributional aspects of its copyright agenda and decide whether to outlaw such contracts or to grant direct cash subsidies to these users.

GOLDSTEIN, *supra* note 11, at 224-25.

154. *See supra* notes 68-70 and accompanying text.

155. Professor Lessig calls the failure to enact necessary legislation a "libertarian failure":

> There is 'market failure' when markets can't be expected to provide goods efficiently; there's 'government failure' when government can't be expected to solve market failures efficiently; and there's 'libertarian failure' when the push to do nothing will produce not no regulation at all, but regulation by the most powerful of special interests.

LESSIG, *supra* note 71, at 337-38.

156. The proposed FAIR USE Act does not go far enough. H.R. 1201, 110th Cong. (2007). The FAIR USE Act merely adds a number of specific exemptions from DMCA 1201(a) and codifies *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984) by absolving contributory liability "if the device is capable of substantial, commercially significant noninfringing use."

157. Trusted computing also promises to usher in a new generation of powerful TPMs through the use of newly developed hardware components to secure the user's computer system. *See* LESSIG, *supra* note 71, at 178-79; M. Scott Boone, *The Past, Present, and Future of Computing and Its Impact on Digital Rights Management*, 2008 MICH. ST. L. REV. 413, 432-33; Chad Woodford, Comment, *Trusted Computing or Big Brother? Putting the Rights Back in Digital Rights Management*, 75 U. COLO. L. REV. 253, 281 (2004). Unlike cloud computing, trusted computing focuses on protecting locally stored content.

As of the time of writing, trusted computing technology is still being demonstrated to vendors and has not been widely adopted by consumers. *See* Trusted Computing Group, Trusted Computing Group to Demonstrate Widely Available Self-Encrypting Drives at Storage Visions 2010

owner's ability to limit access to his or her works should be limited. A comprehensive Digital Public Use Restoration Act should therefore include components that: (A) declare TPM-enforced contractual waivers of fair use invalid and unenforceable, and (B) create a prospective judicial remedy for would-be fair users and public interest groups to discover and take advantage of new or existing non-infringing uses on a cloud.

Declaring the Primacy of Copyright Over TPM-Enforced Contracts

Intellectual property rights are more limited than rights associated with real property.[158] Correspondingly, contractual obligations in the context of copyright should not be as powerful as they are in the context of real property. If copyright owners are using TPM-enforced contractual waivers to restrict unauthorized but non-infringing uses, then such waivers must be set aside.

Electronic waivers that are enforced by non-cloud TPMs should also be included. These other types of TPMs, which have the same detrimental effect on fair use as cloud TPMs, should not be excused merely because they are less effective at fighting piracy than cloud TPMs. Additionally, Congress should not unduly hamper the growth of cloud computing by favoring non-cloud TPMs by treating such technologies differently.

There is no need to extend this contractual preemption provision to cover waivers not enforced by TPMs. Under current judicial doctrine, nothing in the admittedly valid and balanced 1976 Act prohibits such practices.[159] Courts have consistently refused to construe the 1976 Act's section 301(a) preemption clause to cover contract that alter the distribution of rights set by the copyright scheme.[160] In *ProCD, Inc. v. Zeidenberg*, the Seventh Circuit states the general view that "a simple two-party contract is not 'equivalent to any of the exclusive rights within the general scope of copyright' and therefore may be enforced."[161]

Nevertheless, many scholars criticize the *ProCD* doctrine on normative grounds. Some argue that the copyright statute reflects a delicate balance between many different interests that may not be represented in licensing agreements.[162] As a result, parties who "contract around" this balance affect the

Conference, (Dec. 14, 2009), http://www.trustedcomputinggroup.org/media_room/news/98. This note therefore declines to address trusted computing. Insofar as both trusted and cloud computing allow copyright owners to overprotect their works, however, the concerns are identical. *See* SETH SCHOEN, ELECTRONIC FRONTIER FOUNDATION, TRUSTED COMPUTING: PROMISE AND RISK, http://www.eff.org/files/20031001_tc.pdf (last visited Mar. 2, 2010). Consequently, the responses to the overprotection of content by either cloud or trusted computing TPMs should also be the same.

158. *See supra* note 27 and accompanying text.

159. *See supra* note 118.

160. 17 U.S.C. § 301(a) ("[A]ll legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright . . . are governed exclusively by this title."); Bohannan, *supra* note 118, at 617-18.

161. 86 F.3d 1447, 1455 (7th Cir. 1996). This view has been followed by other circuits and is generally regarded as the leading case on the issue. Bohannan, *supra* note 118, at 633.

162. Mark A. Lemley, *Intellectual Property and Shrinkwrap Licenses*, 68 S. CAL. L. REV. 1239, 1278 (1995); *see also* Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1098 (2003) (describing intellectual property law as a "balancing act between allowing the greatest number of people to enjoy works at low cost, without lowering the cost so much that the works will never be created in

rights of third parties and ultimately undermine the legislative balance.[163] Similarly, those who oppose the "enclosure" or overpropertization of intellectual property due to doubts about whether increased rights for content producers actually maximize economic gain are also against allowing contractual waivers of copying rights.[164] These scholars conclude that the copyright scheme should always prevail over attempts by contracting parties to vary their statutory rights, regardless of whether the contracts are enforced by courts or by TPMs.

A distinction, however, can be made between the kinds of contracts at issue in *ProCD* and TPM-enforced contracts. Prior to the advent of TPMs, even if the purchase and use of a product was made contingent on acceptance of fair use waivers, transaction costs would likely have discouraged copyright owners from suing against those making de minimis fair uses.[165] In these circumstances, suits for contractual breaches were likely to involve actual and significant economic harm to the copyright owner in a way that made the satisfaction of the fair use factors unlikely.[166] As a result, restrictive use agreements not enforced by TPMs are only practically effective against entities for whom copying would likely not be considered a fair use.

The fear that copyright owners will begin an eternal crusade against all of their customers for violations of shrinkwrap licenses is overstated, especially in light of the lessons learned by the Recording Industry Association of America.[167] Licensing agreements provide content providers with the ability to

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the first instance"); James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 42-44 (2003) (noting that while "intellectual property rights slow down innovation, by putting multiple roadblocks, multiple necessary licenses, in the way of subsequent innovation," such impediments are necessary to maximize information production because "information products are often made up of fragments of other information products; your information output is someone else's information input").

163. Lemley, *supra* note 162, at 1278; *see also* Radin, *supra* note 116, at 9 ("[I]f the solution envisioned by copyright is now being undermined because all of its rules are treated as default rules, there is an argument that some of those rules should instead be treated as mandatory."); Bohannan, *supra* note 118, at 616 ("Today, people contract away statutory rights—including their rights to use uncopyrighted public domain material as well as their fair use rights—with a single click of the mouse. This contract regime threatens to supplant a sizeable portion of the copyright regime.").

164. Benkler, *supra* note 101, at 401-08. Professor Benkler understands the ability to create contractual agreements that expand a copyright owner's legal rights to be a form of enclosure that leads to suboptimal information distribution. *Id.* at 431-35.

165. During the oral argument for *William & Wilkins Co. v. United States*, 420 U.S. 376 (1975) (per curiam), Chief Justice Burger asked whether an individual who photocopies a protected work would be liable for infringement. GOLDSTEIN, *supra* note 11, at 117-18. Speaking for the plaintiff copyright holder in the case, Alan Latman responded that "[n]obody would sue . . . because it's impractical for anyone to sue." *Id.* at 118. This answer apparently satisfied Chief Justice Burger, who remarked that in a damage claim for small-scale copying, "[t]he recovery might be *de minimis*, so that no one would have any incentive to sue." *Id.* at 118-19.

166. For example, in *ProCD*, the plaintiff ProCD offered its SelectPhone product to the general public with shrinkwrap provisions for personal use. 86 F.3d at 1449. Zeidenberg copied ProCD's $10 million database and made it commercially available at a lower price, thus becoming a significant competitor against ProCD. *Id.* at 1450. Supposing the underlying content in this case was actually copyrightable, the defendant Zeidenberg would probably fail to prove fair use under the section 107 statutory factors. *See supra* notes 39-40.

167. In an about-face, the RIAA announced that it would abandon its much-criticized strategy of filing mass lawsuits against individual infringers due to mixed results and the ensuing public-relations disaster. Sarah McBride & Ethan Smith, *Music Industry to Abandon Mass Suits*, WALL ST. J.,

exercise price discrimination and can therefore make media maximally available to the public.[168] Moreover, while parties to a contract need not consider the interests of anyone else, courts can consider public policy. Simply put, the costs involved in litigation and the possibility of losing even a seemingly meritorious claim for the breach of a paper or shrinkwrap license constitute a real defense for an individual who wishes to make a fair use in violation of a contractual agreement.

Overprotection of copyrighted works was therefore not a problem until TPMs made it feasible to passively enforce restrictive use agreements against massive numbers of purchasers. In this context, the normative criticisms apply full-force. By preventing judicial review of these contracts, important safety valves can be ignored to the detriment of society.[169] In these circumstances, it is doubtful that the benefits of price discrimination outweigh the costs of losing non-infringing uses by default.[170] Because a Digital Public Use Restoration Act should protect non-infringing uses to the extent that they can be completely superseded by TPMs, the scope of contractual preemptions should be limited only to those enforced by TPMs.

Enacting a Prospective Judicial Remedy

Even in the absence of restrictive use agreements, a copyright owner's TPM may still prohibit the realization of a desired non-infringing use. Facing the prospect of violating the DMCA, many may decline to make socially beneficial uses altogether.

While the DMCA's protection of TPMs is still necessary to defend copyrighted works from piracy, the TPMs themselves should ideally allow users to make non-infringing uses of the underlying work. The problem is that as long as technology continues to make new uses of copyrighted works possible, it will be impossible to create an exhaustive list of fair uses. Furthermore, the law does not provide the putative non-infringing user with a legal remedy should a copyright owner refuse to enable non-infringing access.

As Professors Reichman, Dinwoode, and Samuelson conceived of it, the reverse notice and takedown process begins with a user or public interest group demand that the copyright owner disable a TPM for the limited purpose of making a non-infringing use of the underlying work.[171] Copyright owners may either allow the use or issue a timely rejection. In the case of a rejection, the user may pursue a declaratory judgment to vindicate the claim to an entitlement to

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Dec. 19, 2008, at B1, *available at* http://online.wsj.com/article/SB122966038836021137.html.

168. *See supra* note 99 and accompanying text.

169. *See* Radin, *supra* note 116, at 11 (opposing the use of TPMs because they effectively eliminate efficient breach, fair use, unconscionability, reliance, reasonable expectation, duress, interests balancing, and other concepts by allowing content owners to bypass these "safety valve[s]" in court).

170. *See notes* 100-02, 162-64 and accompanying text.

171. Reichman et al., *supra* note 75, at 1032; *but see* Litman, *supra* note 29, at 899 ("Relying on courts to make equitable, fact-specific determinations inevitably involves judicial assessments of the value of the allegedly infringing works, despite the long copyright tradition hostile to such assessments in other contexts.").

circumvent the TPM for the limited purpose of engaging in the non-infringing use. Thus, the reverse notice and takedown process is the mirror opposite of the notice and takedown process described in DMCA 512(c)[172] and allows for the recognition of new fair uses due to advancements in technology and imagination.

As originally envisioned, the reverse notice and takedown process is problematic. Since a favorable declaratory judgment merely permits a user to circumvent the TPM rather than force the copyright owner to enable the non-infringing use, only hackers and entities with enough money to hire hackers can take advantage of this remedy.[173] Unsophisticated users would have to rely on obtaining circumvention tools—tools which should not be available due to the anti-trafficking provision of the DMCA.[174] Even if these tools were illegally available, such a remedy would only be feasible if the TPM guarded locally stored content. The strength of cloud TPMs can make the reverse notice and takedown process more of a "hacker's right" than it already was. Moreover, spontaneous uses would disappear altogether under a regime requiring prior judicial determination.[175]

With a few modifications, the original reverse notice and takedown process can be adapted to better fit the cloud computing paradigm. First, non-infringing users should be entitled to an injunctive remedy if circumventing the TPM proves to be difficult. A declaratory judgment giving the user a right to circumvent is useless if that right cannot be exercised. Unsophisticated users should not be expected to overcome the firewalls of Troy.

This is certainly the case with respect to a cloud TPM's ability to exert effective and continuing control over access to non-linear content.[176] Absent an injunction, the prospect of hacking a cloud makes taking advantage of fair use prohibitively costly for non-linear content. The availability of dual use video capturing devices may compromise a cloud's ability to absolutely protect linear media,[177] and therefore putative non-infringing users may have their desired access to the content without having to get an injunction. The option for obtaining an injunction should remain open due to possible new technologies that may effectively protect even linear media from circumvention.

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172. 17 U.S.C. § 512(c) (2006).

173. *See* Burk & Cohen, *supra* note 100, at 61 ("[U]nder this system, fair use might become the sole provenance of well-capitalized firms with the resources to engage in the process.").

174. *See supra* notes 72-73 and accompanying text.

175. Burk & Cohen, *supra* note 100, at 61. Professors Burk and Cohen argue that a "key escrow" system would be a superior alternative to relying on a prospective judicial remedy. *Id.* at 63. Under their proposal, trusted third parties are given "keys" that can disable TPMs and are authorized to distribute these keys to those seeking to make fair uses of the underlying content. *Id.* To preserve spontaneous uses, however, they eschew any preauthorization requirement—including making a determination regarding the bona fides of the access application; instead, the third party would issue the keys automatically upon request. *Id.* While this approach does provide fair uses to the maximum extent possible, it does so by effectively eliminating TPMs. Such a drastic solution does not seem to adequately take into account the risk of massive piracy that motivated Congress to adopt the DMCA in the first place.

176. *See supra* notes 145-147 and accompanying text.

177. Under the FAIR USE Act, H.R. 1201, such dual use hardware devices may be legal and therefore available.

Second, claimants should be compensated for reasonable legal fees upon success. By creating an incentive for attorneys to pursue meritorious fair use claims, users otherwise lacking financial resources to press their claims in court can feasibly use the reverse notice and takedown process. A higher volume of litigation also ensures that new kinds of fair uses will be discovered. Most importantly, copyright owners and cloud service providers would be forced to take non-infringing uses seriously. As potential repeat actors in court, they would be discouraged from overprotecting content due to the increased costs of litigating additional cases and possibly losing. Ideally, this would encourage copyright owners to enable as much non-infringing access to their works as is feasible.

This modified reverse notice and takedown process will not discourage investment in cloud computing or other sophisticated TPMs. While TPMs that overprotect may be the subject of additional reverse takedown claims, TPMs that underprotect content are prone to piracy. If anything, copyright owners would want to find the middle ground by investing in smarter TPMs that can better discriminate particular uses.

Compared to earlier TPMs that guarded locally stored content, cloud TPMs are both smarter and stronger. Due to their control over the underlying work, cloud TPMs are in a position to grant limited fair use licenses[178] upon validation of the subscriber's identity or credentials.[179] In contrast, copyright owners would have to completely disable a less sophisticated TPM to allow for fair uses without even such assurances that the user will not abuse their access.

A larger concern is whether content producers would want to continue producing digital media if the use of TPMs means having to deal with reverse takedown claims or the expense of using sophisticated TPMs that permit access for fair use. There are two responses to this problem. First, if the costs associated with making fair uses available outweighs the benefits of having the TPM, then copyright owners will be forced to sell TPM-free content. Nothing forces copyright owners to use TPMs, and works unprotected by technological measures remain protected by copyright law.

To the extent that the risk of infringement is too great to provide TPM-free content, we must reconsider whether the production of digital intellectual property actually promotes the useful arts if access to it will always be strictly controlled. This is, however, a complex question regarding the feasibility, profitability, and social impact of cloud computing, which will only be answered as these services become more common. If the enactment of the 1976 Act sheds light on how to create a balanced copyright law, Congress should consider bringing all relevant groups of copyright owners and public interest

178. Limited access does not necessarily mean that the access has to be convenient. *See supra* note 89. A cloud service provider may force the user to print the source code of a program rather than make it available in a text file if this will reduce the risk of piracy. A cloud may also degrade the fair use version of a music file or add watermarks to videos.

179. Given that automated validation measures are already used to enable online banking and other important commercial transactions, including subscribing to clouds for access to digital content, it should be possible for cloud service providers to allow fair use access without requiring human intervention.

advocates to the bargaining table in order to manage the costs and benefits of cloud TPMs.

CONCLUSION

The Constitution directs Congress to create a copyright law only for the limited purpose of "promot[ing] the Progress of Science and useful Arts." Spurred onward by technological advancements that provided additional opportunities for others to use copyrighted works in new transmission mediums, each past iteration of copyright law has progressively expanded the scope of copyright protection. Nevertheless, past legislatures have crafted important caveats to copyright in order to prevent the complete monopolization of access to copyrighted content.[180] Now that technology allows copyright owners to protect their works more comprehensively than either copyright or even contract law, it follows that Congress should restrict the scope of legal protection for copyrighted works.

Cloud computing constitutes both a promise and a threat. By providing additional security against copyright infringement, clouds can help enforce the default regime of copyright law. The problem arises when clouds protect underlying content too effectively, thereby superseding the delicate balances established by copyright laws with privately created and extrajudicially enforced terms of use. Under the regime of cloud TPMs, the public may never be able to engage in unauthorized but non-infringing uses of copyrighted works.

By prohibiting the circumvention of cloud TPMs, the DMCA is now in conflict with the Copyright Act of 1976. The ability to charge for fair and other non-infringing uses does not guarantee that copyright owners will to make such uses available. In addition, First Amendment concerns remain salient due to this substantial risk of speech restriction. Congress must therefore resolve the tension by allowing room for the public to engage in fair and other non-infringing uses of copyrighted works before such uses vaporize.

180. *See supra* notes 15, 26 and accompanying text.